



October 24, 2025

Pascal Rettig, Chair
Amesbury Planning Board
62 Friend Street
Amesbury, MA 01913

**RE: Stormwater Memo
6 Lake Attitash Way
Amesbury, Massachusetts**

Dear Mr. Rettig,

On behalf of Nate Mallard (Applicant), McCarty Engineering Inc. (MEI) is submitting this stormwater memo for the property located at 6 Lake Attitash Way, shown as Parcel 103A Map 59 on the City of Amesbury Assessors. The parcel is approximately 1 acre in size, located in the Residence 20 zoning district and the Water Resource Protection Zone B Overlay district. The proposed project includes the construction of a single-family residence, detached garage and shed, pervious paver driveway, dry wells for the house and detached one car garage, landscaping and associated grading to facilitate the proposed improvements. Erosion control barriers are proposed downgradient of the limit of disturbance of the lot to minimize the risk of siltation transport off site and to the adjacent isolated wetland.

As previously stated in our Special Permit Application, the Massachusetts Department of Environmental Protection (MADEP) Stormwater Management Standards state that the Standards shall not apply to a single-family home project. However, the City of Amesbury's Local Bylaw (Section 14(I)B.7(1)) exceeds certain provisions of the MADEP Stormwater Handbook by requiring applicants to provide a stormwater management system and provide artificial recharge of precipitation. This Bylaw states:

For lots occupied, or proposed to be occupied, by single or two family residences recharge shall be attained through site design that incorporates natural drainage patterns and vegetation in order to maintain pre- development stormwater patterns and water quality to the greatest extent possible. Stormwater runoff from rooftops, driveways and other impervious surfaces shall be routed through grassed water quality swales, as sheet flow over lawn areas or to constructed stormwater wetlands, sand filters, organic filters and/or similar systems capable of removing nitrogen and phosphorus from stormwater.

Per 310 CMR 10.05(6)(l), the Massachusetts Stormwater Management Standards (SMS) shall not apply to a single-family house. However, the project has been designed to comply with the MA SMS to the maximum extent practicable. In addition, the project also exceeds EPA's Municipal Separate Storm Sewer System (MS4) provisions used by many local municipalities that require 90% TSS pollutant removal and 60% total phosphorus removal. These removal efficiencies are achieved by installing BMP's that meet the pollutant removal percentages or by retaining a volume of runoff on site equivalent to or greater than 1" multiplied by the total post construction impervious area. This project meets this requirement by incorporating drywells to infiltrate the roof top runoff from the house and garage, and the installation of a pervious paver driveway system (in place of asphalt) with a stone base recharge volume to treat and infiltrate the runoff from the proposed driveways. The water quality volume calculations for the project are as follows:

Driveway

Impervious Area = 1,032 SF

WQv Required = $1,032 \text{ sf} \times 1" \times (1'/12") = 86 \text{ cf}$

WQv Provided = $1,032 \text{ sf} \times 10" \times (1'/12") = 860 \text{ cf} \times 40\% \text{ (stone void space)} = 344 \text{ cf}$

The WQv below the driveway equates to a 4" water quality volume, significantly exceeding that required by EPA's standards which will achieve a 90% TSS pollutant removal and 60% total phosphorus removal rate.

Garage

Impervious Area = 288 SF

WQv Required = $288 \text{ sf} \times 1" \times (1'/12") = 24 \text{ cf}$ (180 Gallons)

WQv Provided = 300 Gallon Drywell

The WQv in the 300 gallon drywell equates to a 1.67" water quality volume, significantly exceeding that required by EPA's standards which will achieve a 90% TSS pollutant removal and 60% total phosphorus removal rate.

Roof Top

Impervious Area = 288 SF

WQv Required = $1,072 \text{ sf} \times 1" \times (1'/12") = 90 \text{ cf}$ (673 Gallons)

WQv Provided = 1000 Gallon Drywell

The WQv in the 1000 gallon drywell equates to a 1.48" water quality volume, significantly exceeding that required by EPA's standards which will achieve a 90% TSS pollutant removal and 60% total phosphorus removal rate.

As shown above, the project exceeds this requirement by surpassing the required 1" water quality volume for all new impervious area on site within the proposed drywells and permeable paver driveways.

To further detail how the proposed project meets the requirements of the local bylaw, a hydrologic analysis was performed to document the projects compliance. The hydrologic study area is comprised of approximately 0.645 acres. Based on the USDA Natural Resources Conservation Service soil survey the site is comprised of Paxton fine sandy loam, which is a Hydrologic Soil Group (HSG) “C” Soil. Based on the soil survey, the Rawls Rate for a “C” soil (0.27 in/hr) has been used in this analysis for the dry wells and pervious pavement as detailed within the MADEP Stormwater Handbook. Refer to the attached Existing and Proposed Conditions Watershed Figures and the NRCS soil survey.

Hydrologic analyses were performed utilizing the computer program, HydroCAD©. In order to determine the peak rate of discharge for existing and proposed conditions, runoff hydrographs were generated for the 2, 10, 25, 50 and 100-year, 24-hour storm events using the SCS TR-20 Method and Type III rainfall distribution. Precipitation amounts utilized in the analysis are as defined by NOAA Atlas 14, Volume 10, Version 3 (Atlas 14 rainfall amounts for Essex County used within the HydroCAD models). Under proposed conditions, the post development runoff hydrographs were flood routed through the proposed stormwater management facilities. The following summarizes the proposed project’s compliance with the MADEP Stormwater Managements Standards as required:

Standard #1 Untreated Direct Discharge of Stormwater: No new untreated storm water conveyances have been proposed to discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth. Drywells and pervious paver driveways are proposed to minimize sheet flow, promote TSS removal and provide infiltration.

Standard #2 Post-Development Peak Discharge: The proposed dry wells and pervious paver driveways will aid in decreasing peak discharge rates for each storm event to the maximum extent practicable. The table below shows that the post development peak discharge rates to Lake Attitash Way will be decreased for all storm events and the post development peak discharge rates to the isolated wetland will exceed existing conditions by a maximum of 0.05 cfs for the 50-year storm event.

Design Point 1R (Attitash Way)

Storm Event	Existing Flow (cfs)	Proposed Flow (cfs)	Proposed Increase (cfs)
2-Year	0.03	0.02	-0.01
10-Year	0.07	0.05	-0.02
25-Year	0.11	0.07	-0.04
50-Year	0.15	0.09	-0.06
100-Year	0.20	0.12	-0.08

Design Point 2R (Wetland Overflow)

Storm Event	Existing Flow (cfs)	Proposed Flow (cfs)	Proposed Increase (cfs)
2-Year	0.58	0.59	+0.01
10-Year	1.49	1.45	-0.04
25-Year	2.30	2.33	+0.03
50-Year	3.10	3.15	+0.05
100-Year	4.10	4.13	+0.03

Standard #3 Recharge to Groundwater: The project site is located within a Hydrologic Soil Group (HSG) "C" classified soil. Per MA DEP standards, recharge is required to eliminate or minimize the loss of annual recharge to groundwater through the use of environmentally sensitive site design, BMP's and good operation and maintenance. As the project will result in an increase in impervious area, this increase in area is considered in the sizing of the proposed recharge facilities. The required recharge volume for the proposed impervious area resulting from the project is 0.001 AC-FT. For the 2-year storm event, the recharge facilities will provide approximately 0.014 AC-FT of recharge to groundwater. In addition, proposed dry wells and pervious paver driveways will provide in excess of the required 1.0 in water quality volume for all impervious area on site. Refer to the attached HydroCAD model, recharge calculation and water quality volume calculations within this report.

Standard #4 80 Percent TSS Removal: Based on the proposed stormwater management system design, the proposed BMP's will achieve a 90% Total Suspended Solids (TSS) removal rate by treating the 1" water quality volume on site.

Standard #5 Higher Potential Pollutant Loads: The proposed project site does not contain land uses defined by DEP to have higher potential pollutant loads. Therefore, Standard #5 is not applicable to this project.

Standard #6 Protection of Critical Areas: The project site is NOT located in an Outstanding Resource Water or ACEC, therefore it is not considered a critical area.

Standard #7 Redevelopment Project: Redevelopment projects include development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area. As such, the proposed project does not qualify as a redevelopment.

Standard #8 Construction Term Erosion/Sediment Control: Erosion and sedimentation controls will be incorporated into the project and are found on the attached Site Plans.

Standard #9 Long Term Operation and Maintenance Plan: An operation and maintenance plan has been provided with this report.

Standard #10 Illicit Discharge Compliance Statement: To the Engineer's knowledge, there are no known or designed non-stormwater discharges that are or will be connected to the stormwater collection system that would convey pollutants directly to groundwater or surface waters.

CONCLUSION

The proposed stormwater management plan for the project addresses both water quantity and quality and conforms to the Standards outlined in the revised MADEP Stormwater Management Policy to the maximum extent practicable and meets the Town's Stormwater Management Bylaw. If you have any questions regarding this application, please contact me at (978)534-1318.

Respectfully,



Brian Marchetti, P.E.
Vice President, Engineering

NRCS Soil Survey

Hydrologic Soil Group—Essex County, Massachusetts, Northern Part (6 Lake Attitash Way)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 21, Sep 5, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	0.1	12.0%
254C	Merrimac fine sandy loam, 8 to 15 percent slopes	A	0.0	3.5%
306D	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	C	0.4	28.6%
307E	Paxton fine sandy loam, 25 to 35 percent slopes, extremely stony	C	0.2	17.0%
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	0.5	38.8%
Totals for Area of Interest			1.2	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Recharge Calculations

McCarty Engineering, INC. Project: 6 Lake Attitash Way
Stormwater Recharge

Date: 10/24/25
Comp: BRM
Check : BRM

City: Amesbury
State: MA

Recharge Required

Hydrologic Soil Group	Volume to Recharge (in)
C	0.25

The areas included in the Required Recharge Volume calculations reflect the increase in impervious area resulting from the proposed development.

Required Recharge Volume

Soil group	Impervious Area (ac)	Required Volume (ac-ft)
A	0.058	0.001
Total		0.001

Recharge Provided

***Total Recharge Provided in Dry Wells and Pervious Pavement
during the 2-year storm= 0.014 AC-FT**

**All recharge is taking place through the bottom of the infiltration BMP's. Refer to the Proposed Conditions HydroCAD Model for the Recharge Volume for all storm events.*

Operation and Maintenance Plan

**Residential Development
6 Lake Attitash Way
Amesbury, Massachusetts
Operation and Maintenance Plan**

The site contractor will be responsible for the operation and maintenance of the stormwater collection system including the pervious pavers and dry well as applicable during construction. After construction, the Property Owner is responsible for the operation and maintenance of the proposed stormwater collection system. The following long-term Operation and Maintenance Plan for the project is proposed in accordance with DEP Stormwater Management Standard No. 9 to ensure that the stormwater collection and treatment system operates in accordance with the MADEP Stormwater Management Policy.

Schedule for Inspection and Maintenance after Construction:

Stormwater Management System Owner/Operator

- The project Developer will be the owner and operator of the proposed stormwater collection system on site.
- When the property is sold, a copy of this Operation and Maintenance Plan will be transferred to the new property owners.

Pervious Pavers

- Once constructed, the pervious pavers shall be inspected after every rainfall event to ensure water does not pond on the surface. If ponding occurs, vacuum sweeping must be performed.
 - Vacuuming shall be conducted during spring cleanup following the last snowfall event to remove sediment deposited from winter conditions.
 - Vacuuming shall be conducted during fall cleanup to remove accumulated leafy debris.
 - Power washing shall be implemented if vacuuming is not adequate to restore the infiltration capacity of the joint material.
 - Joint material must be refilled if removed during vacuum maintenance. Material should also be replaced once every 5-10 years or as needed if infiltration capacity diminishes.
-

Drywell

- Inspect drywell after every major storm event in the first few months after construction to ensure proper stabilization and function. Inspect annually thereafter. A major storm event is any storm greater than the 2-year storm which is 3.24 inches of rainfall in a 24-hour period.
- If system failure is observed, replace or repair drywell components as required.

The routine and non-routine maintenance tasks to be undertaken after construction and a schedule for implementing those tasks

- A site maintenance log will be kept. This log will record the dates when maintenance tasks were completed, the person who completed the task, and any observations of malfunctions in components of the stormwater management system. A sample maintenance log form is attached.

Estimated Operations and Maintenance Budget

- Operation and maintenance costs for the project are expected to be approximately \$200/year.
-

**Residential Development
6 Lake Attitash Way
Amesbury, Massachusetts
Operation and Maintenance Plan**

Operation and Maintenance Schedule

BMP	Frequency	Date Performed	Comments	Cleaning/ Repair Needed? Yes/No	Date of Cleaning/ Repair	Performed By
Pervious Pavers	Inspection after each major storm event Spring and Fall Cleanup Power wash as needed Replace joint material as needed					
Dry Well	Inspect drywell after every major storm event in the first few months .Inspect annually thereafter.					

Site Maintenance Supervisor:_____

Date:_____

MADEP Stormwater Checklist

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Brian Marchetti

10/24/2025

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☐ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
- ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
- ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
- ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
- ☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☒ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Illicit Discharge Compliance Statement

Residential Development
6 Lake Attitash Way
Amesbury, Massachusetts

Illicit Discharge Compliance Statement

The Stormwater Management System associated with the development of 6 Lake Attitash Way has been designed such that prior to storm water runoff discharging from the site, it is treated through a series of best management practices. To the Engineer's knowledge, there are no known or designed non-storm water discharges that are or will be connected to the storm water collection system that would convey pollutants directly to groundwater or surface waters.

Name: Brian R. Marchetti, P.E.

Title: Vice President Engineering

Signature: _____



Date: _____

10/24/2025

Figures

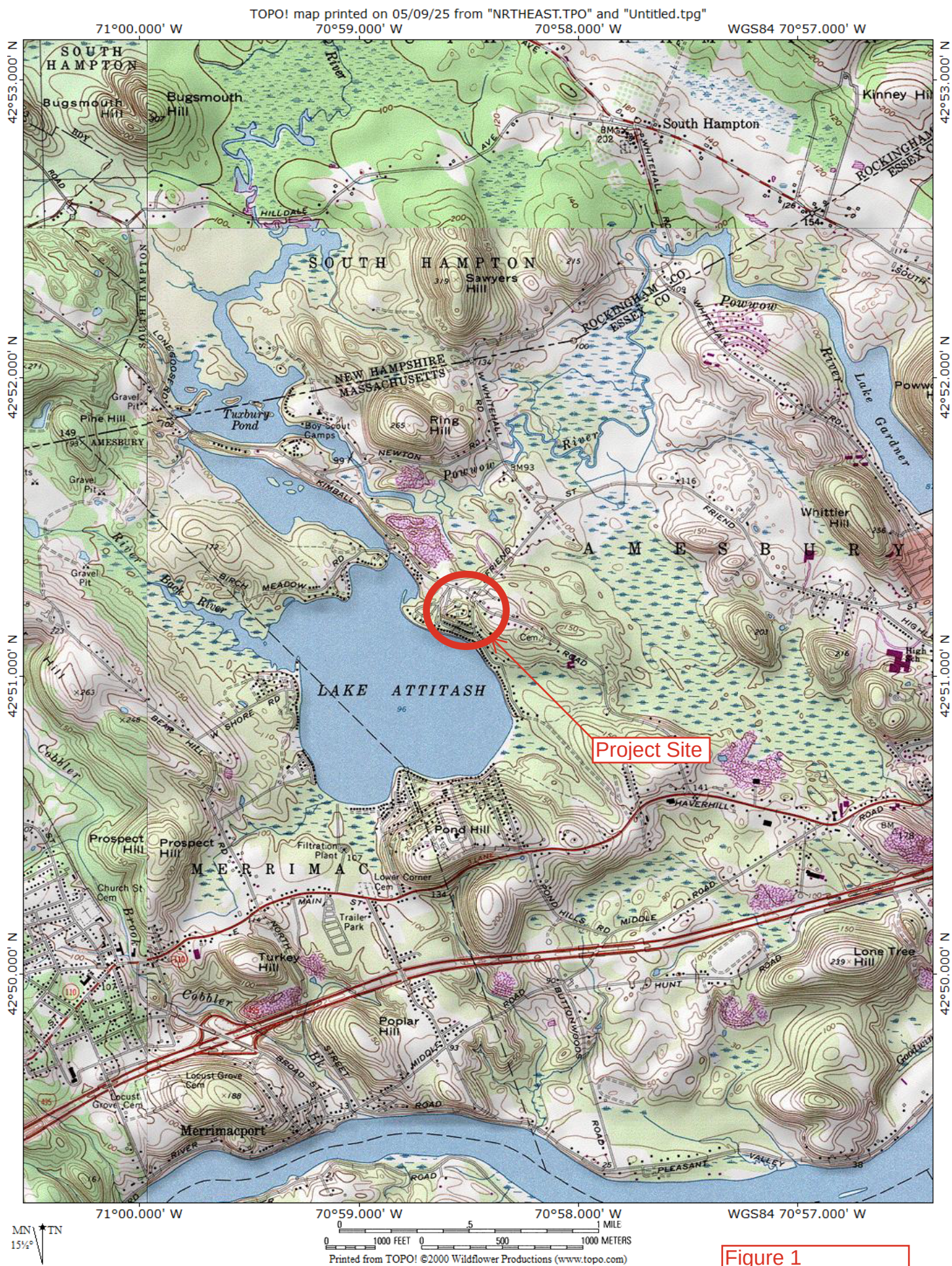
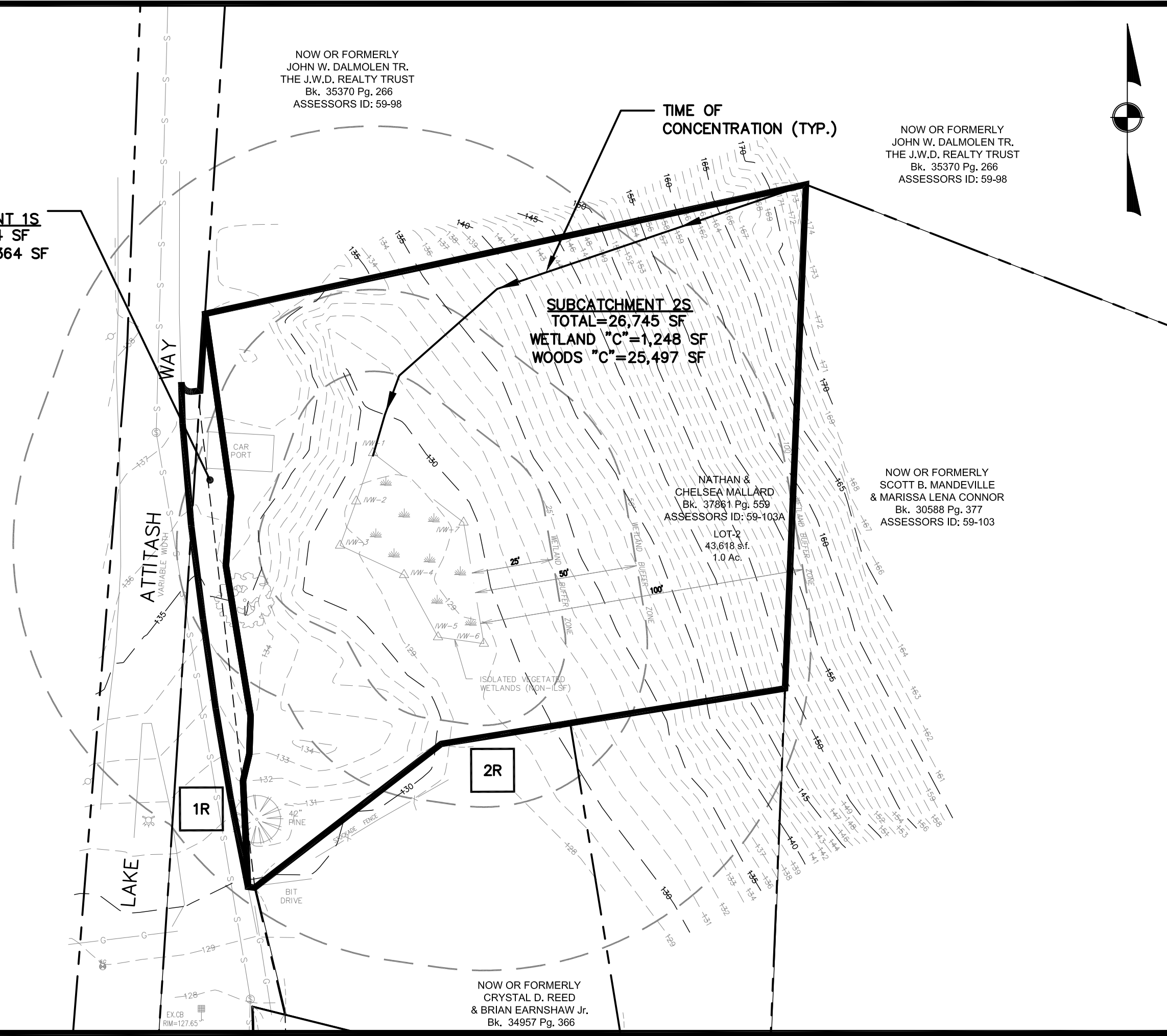


Figure 1
Site Locus

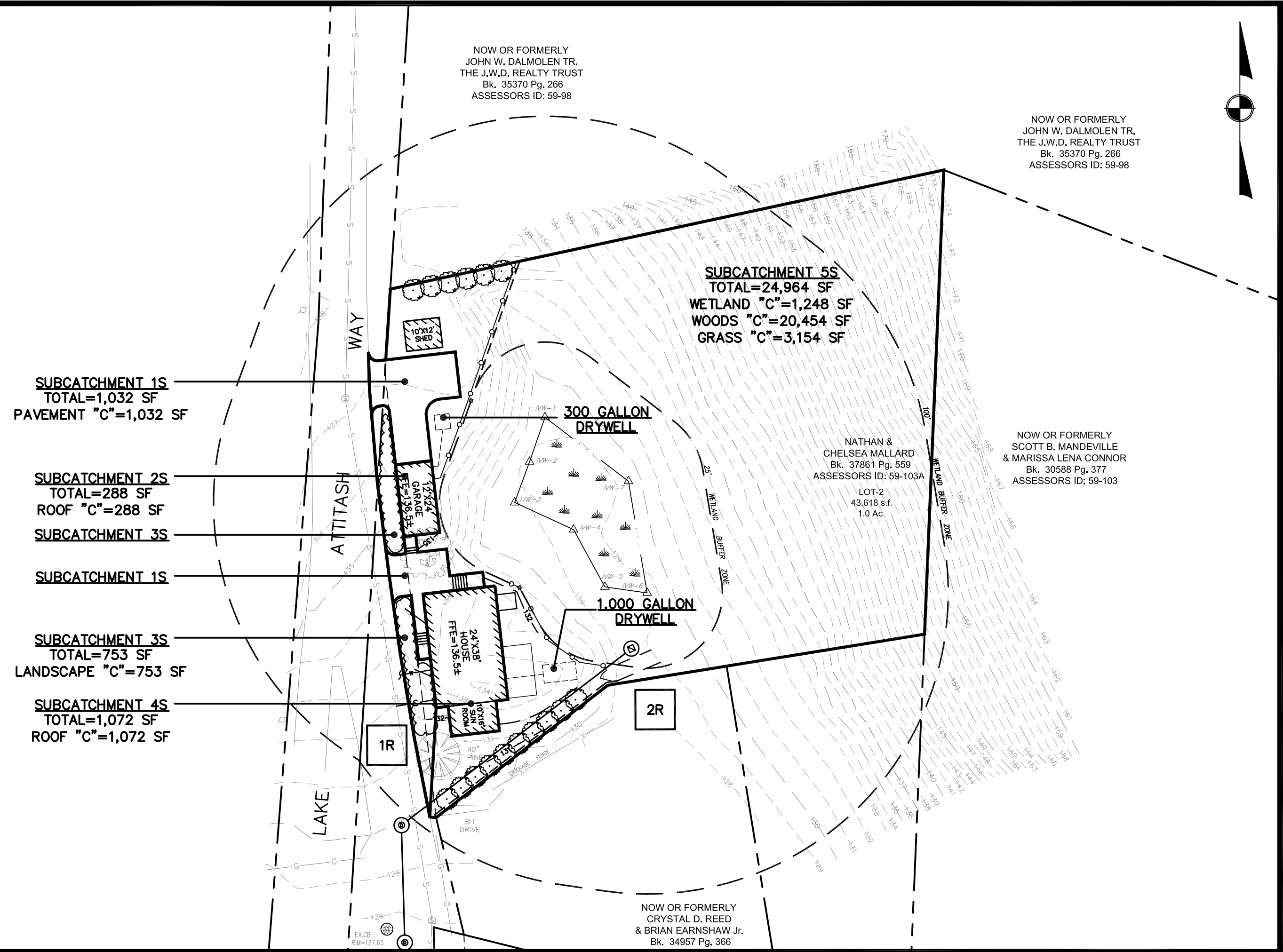


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BRM BRM

;



No. Date Revision

Drawn By: BRM
Designed By: BRM
Checked By:

McCarty Engineering, Inc.
Civil Engineers

42 Tucker Drive, Leominster, MA 01453
phone:(978) 534-1318 fax: (978) 840-6907

Project Name

Proposed Single Family
6 Lake Attitash Way
Amesbury, MA

Sheet Title

Proposed Watershed
Plan

Job No: 250

File Name: Proposed Model

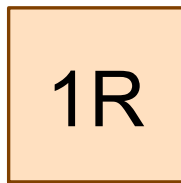
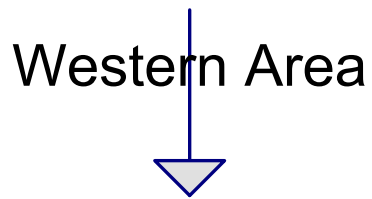
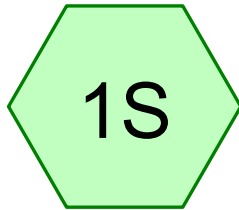
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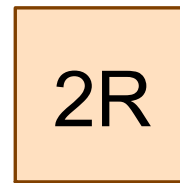
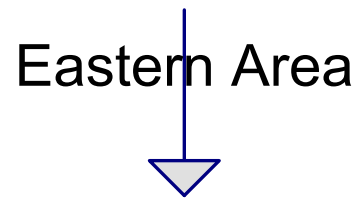
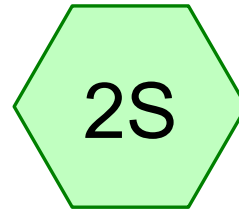
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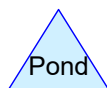
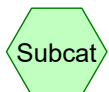
Existing Conditions HydroCAD Model



Lake Attitash Way



Wetland Discharge to
the South



6 Lake Attitash Way Existing Conditions

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.15	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.83	2
3	25-Year	Type III 24-hr		Default	24.00	1	6.16	2
4	50-Year	Type III 24-hr		Default	24.00	1	7.42	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.94	2

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.029	98	Wetland, HSG C (2S)
0.617	70	Woods, Good, HSG C (1S, 2S)
0.645	71	TOTAL AREA

6 Lake Attitash Way Existing Conditions

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.645	HSG C	1S, 2S
0.000	HSG D	
0.000	Other	
0.645		TOTAL AREA

6 Lake Attitash Way Existing Conditions

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.029	0.000	0.000	0.029	Wetland	2S
0.000	0.000	0.617	0.000	0.000	0.617	Woods, Good	1S, 2S
0.000	0.000	0.645	0.000	0.000	0.645	TOTAL AREA	

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Western Area

Runoff Area=1,364 sf 0.00% Impervious Runoff Depth=0.80"

Tc=5.0 min CN=70 Runoff=0.03 cfs 0.002 af

Subcatchment 2S: Eastern Area

Runoff Area=26,745 sf 4.67% Impervious Runoff Depth=0.85"

Flow Length=164' Tc=4.5 min CN=71 Runoff=0.58 cfs 0.043 af

Reach 1R: Lake Attitash Way

Inflow=0.03 cfs 0.002 af

Outflow=0.03 cfs 0.002 af

Reach 2R: Wetland Discharge to the South

Inflow=0.58 cfs 0.043 af

Outflow=0.58 cfs 0.043 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.045 af Average Runoff Depth = 0.85"
95.56% Pervious = 0.617 ac 4.44% Impervious = 0.029 ac

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 1S: Western Area

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth= 0.80"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (sf)	CN	Description
1,364	70	Woods, Good, HSG C
1,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 2S: Eastern Area

Runoff = 0.58 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 0.85"

Routed to Reach 2R : Wetland Discharge to the South

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-Year Rainfall=3.15"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	25,497	70	Woods, Good, HSG C
	26,745	71	Weighted Average
	25,497		95.33% Pervious Area
	1,248		4.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.80" for 2-Year event

Inflow = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af

Outflow = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Reach 2R: Wetland Discharge to the South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.614 ac, 4.67% Impervious, Inflow Depth = 0.85" for 2-Year event

Inflow = 0.58 cfs @ 12.08 hrs, Volume= 0.043 af

Outflow = 0.58 cfs @ 12.08 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Western Area

Runoff Area=1,364 sf 0.00% Impervious Runoff Depth=1.91"

Tc=5.0 min CN=70 Runoff=0.07 cfs 0.005 af

Subcatchment 2S: Eastern Area

Runoff Area=26,745 sf 4.67% Impervious Runoff Depth=1.99"

Flow Length=164' Tc=4.5 min CN=71 Runoff=1.49 cfs 0.102 af

Reach 1R: Lake Attitash Way

Inflow=0.07 cfs 0.005 af

Outflow=0.07 cfs 0.005 af

Reach 2R: Wetland Discharge to the South

Inflow=1.49 cfs 0.102 af

Outflow=1.49 cfs 0.102 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.107 af Average Runoff Depth = 1.99"
95.56% Pervious = 0.617 ac 4.44% Impervious = 0.029 ac

6 Lake Attitash Way Existing Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 1S: Western Area

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 1.91"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

Area (sf)	CN	Description
1,364	70	Woods, Good, HSG C
1,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 2S: Eastern Area

Runoff = 1.49 cfs @ 12.07 hrs, Volume= 0.102 af, Depth= 1.99"

Routed to Reach 2R : Wetland Discharge to the South

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-Year Rainfall=4.83"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	25,497	70	Woods, Good, HSG C
	26,745	71	Weighted Average
	25,497		95.33% Pervious Area
	1,248		4.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Existing Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 1.91" for 10-Year event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Reach 2R: Wetland Discharge to the South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.614 ac, 4.67% Impervious, Inflow Depth = 1.99" for 10-Year event
Inflow = 1.49 cfs @ 12.07 hrs, Volume= 0.102 af
Outflow = 1.49 cfs @ 12.07 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Western Area

Runoff Area=1,364 sf 0.00% Impervious Runoff Depth=2.93"
Tc=5.0 min CN=70 Runoff=0.11 cfs 0.008 af

Subcatchment 2S: Eastern Area

Runoff Area=26,745 sf 4.67% Impervious Runoff Depth=3.03"
Flow Length=164' Tc=4.5 min CN=71 Runoff=2.30 cfs 0.155 af

Reach 1R: Lake Attitash Way

Inflow=0.11 cfs 0.008 af
Outflow=0.11 cfs 0.008 af

Reach 2R: Wetland Discharge to the South

Inflow=2.30 cfs 0.155 af
Outflow=2.30 cfs 0.155 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.163 af Average Runoff Depth = 3.02"
95.56% Pervious = 0.617 ac 4.44% Impervious = 0.029 ac

6 Lake Attitash Way Existing Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 1S: Western Area

Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 2.93"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

Area (sf)	CN	Description
1,364	70	Woods, Good, HSG C
1,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 2S: Eastern Area

Runoff = 2.30 cfs @ 12.07 hrs, Volume= 0.155 af, Depth= 3.03"

Routed to Reach 2R : Wetland Discharge to the South

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-Year Rainfall=6.16"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	25,497	70	Woods, Good, HSG C
	26,745	71	Weighted Average
	25,497		95.33% Pervious Area
	1,248		4.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Existing Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 2.93" for 25-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af
Outflow = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Reach 2R: Wetland Discharge to the South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.614 ac, 4.67% Impervious, Inflow Depth = 3.03" for 25-Year event
Inflow = 2.30 cfs @ 12.07 hrs, Volume= 0.155 af
Outflow = 2.30 cfs @ 12.07 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Western Area

Runoff Area=1,364 sf 0.00% Impervious Runoff Depth=3.97"

Tc=5.0 min CN=70 Runoff=0.15 cfs 0.010 af

Subcatchment 2S: Eastern Area

Runoff Area=26,745 sf 4.67% Impervious Runoff Depth=4.08"

Flow Length=164' Tc=4.5 min CN=71 Runoff=3.10 cfs 0.209 af

Reach 1R: Lake Attitash Way

Inflow=0.15 cfs 0.010 af

Outflow=0.15 cfs 0.010 af

Reach 2R: Wetland Discharge to the South

Inflow=3.10 cfs 0.209 af

Outflow=3.10 cfs 0.209 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.219 af Average Runoff Depth = 4.07"
95.56% Pervious = 0.617 ac 4.44% Impervious = 0.029 ac

6 Lake Attitash Way Existing Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 1S: Western Area

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 3.97"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
1,364	70	Woods, Good, HSG C
1,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Existing Conditions

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Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 2S: Eastern Area

Runoff = 3.10 cfs @ 12.07 hrs, Volume= 0.209 af, Depth= 4.08"

Routed to Reach 2R : Wetland Discharge to the South

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Type III 24-hr 50-Year Rainfall=7.42"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	25,497	70	Woods, Good, HSG C
	26,745	71	Weighted Average
	25,497		95.33% Pervious Area
	1,248		4.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Existing Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 3.97" for 50-Year event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af
Outflow = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Reach 2R: Wetland Discharge to the South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.614 ac, 4.67% Impervious, Inflow Depth = 4.08" for 50-Year event
Inflow = 3.10 cfs @ 12.07 hrs, Volume= 0.209 af
Outflow = 3.10 cfs @ 12.07 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Western Area

Runoff Area=1,364 sf 0.00% Impervious Runoff Depth=5.28"

Tc=5.0 min CN=70 Runoff=0.20 cfs 0.014 af

Subcatchment 2S: Eastern Area

Runoff Area=26,745 sf 4.67% Impervious Runoff Depth=5.41"

Flow Length=164' Tc=4.5 min CN=71 Runoff=4.10 cfs 0.277 af

Reach 1R: Lake Attitash Way

Inflow=0.20 cfs 0.014 af

Outflow=0.20 cfs 0.014 af

Reach 2R: Wetland Discharge to the South

Inflow=4.10 cfs 0.277 af

Outflow=4.10 cfs 0.277 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.290 af Average Runoff Depth = 5.40"
95.56% Pervious = 0.617 ac 4.44% Impervious = 0.029 ac

6 Lake Attitash Way Existing Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 1S: Western Area

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 5.28"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

Area (sf)	CN	Description
1,364	70	Woods, Good, HSG C
1,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Existing Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 2S: Eastern Area

Runoff = 4.10 cfs @ 12.07 hrs, Volume= 0.277 af, Depth= 5.41"
Routed to Reach 2R : Wetland Discharge to the South

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	25,497	70	Woods, Good, HSG C
	26,745	71	Weighted Average
	25,497		95.33% Pervious Area
	1,248		4.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Existing Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 5.28" for 100-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.014 af
Outflow = 0.20 cfs @ 12.07 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Existing Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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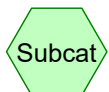
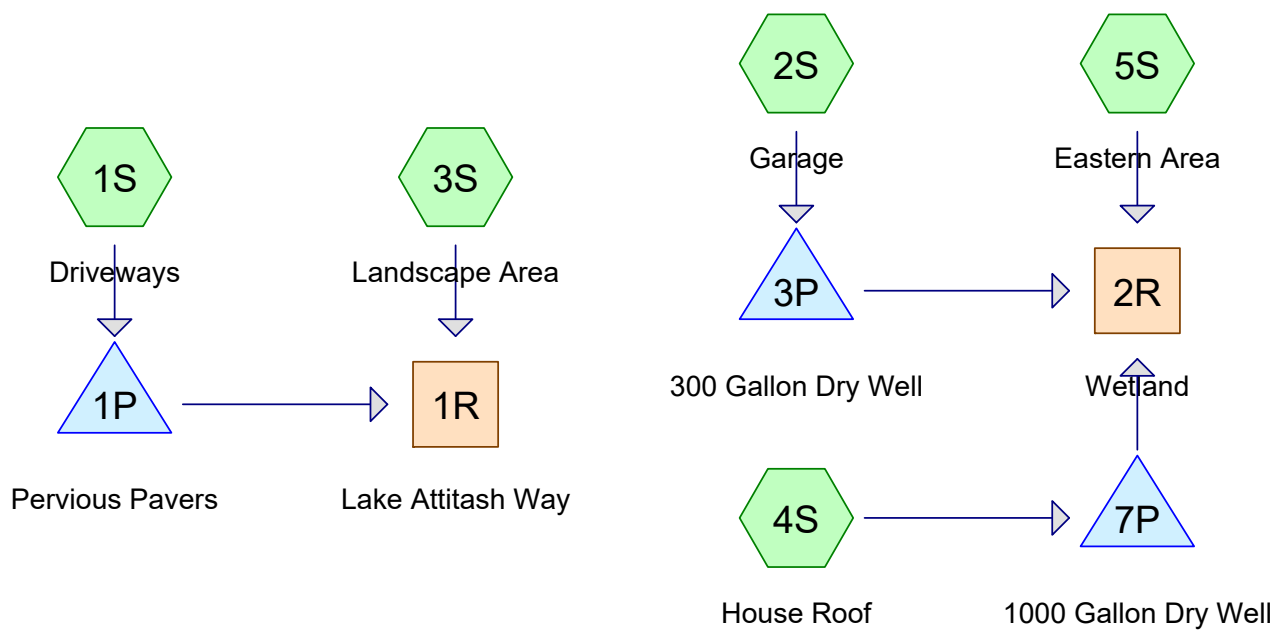
Summary for Reach 2R: Wetland Discharge to the South

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.614 ac, 4.67% Impervious, Inflow Depth = 5.41" for 100-Year event
Inflow = 4.10 cfs @ 12.07 hrs, Volume= 0.277 af
Outflow = 4.10 cfs @ 12.07 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

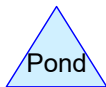
Proposed Conditions HydroCAD Model



Subcat



Reach



Pond



Link

Routing Diagram for 6 Lake Attitash Way Proposed Conditions

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6 Lake Attitash Way Proposed Conditions

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.15	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.83	2
3	25-Year	Type III 24-hr		Default	24.00	1	6.16	2
4	50-Year	Type III 24-hr		Default	24.00	1	7.42	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.94	2

6 Lake Attitash Way Proposed Conditions

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.090	74	>75% Grass cover, Good, HSG C (3S, 5S)
0.055	98	Paved parking, HSG C (1S, 2S, 4S)
0.003	98	Roofs, HSG C (5S)
0.029	98	Wetland, HSG C (5S)
0.469	70	Woods, Good, HSG C (5S)
0.645	74	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.645	HSG C	1S, 2S, 3S, 4S, 5S
0.000	HSG D	
0.000	Other	
0.645		TOTAL AREA

6 Lake Attitash Way Proposed Conditions

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.090	0.000	0.000	0.090	>75% Grass cover, Good	3S, 5S
0.000	0.000	0.055	0.000	0.000	0.055	Paved parking	1S, 2S, 4S
0.000	0.000	0.003	0.000	0.000	0.003	Roofs	5S
0.000	0.000	0.029	0.000	0.000	0.029	Wetland	5S
0.000	0.000	0.469	0.000	0.000	0.469	Woods, Good	5S
0.000	0.000	0.645	0.000	0.000	0.645	TOTAL AREA	

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Driveways

Runoff Area=1,032 sf 100.00% Impervious Runoff Depth=2.92"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

Subcatchment2S: Garage

Runoff Area=288 sf 100.00% Impervious Runoff Depth=2.92"
Tc=5.0 min CN=98 Runoff=0.02 cfs 0.002 af

Subcatchment3S: Landscape Area

Runoff Area=753 sf 0.00% Impervious Runoff Depth=1.00"
Tc=5.0 min CN=74 Runoff=0.02 cfs 0.001 af

Subcatchment4S: House Roof

Runoff Area=1,072 sf 100.00% Impervious Runoff Depth=2.92"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

Subcatchment5S: Eastern Area

Runoff Area=24,964 sf 5.48% Impervious Runoff Depth=0.90"
Flow Length=164' Tc=4.5 min CN=72 Runoff=0.59 cfs 0.043 af

Reach 1R: Lake Attitash Way

Inflow=0.02 cfs 0.001 af
Outflow=0.02 cfs 0.001 af

Reach 2R: Wetland

Inflow=0.59 cfs 0.043 af
Outflow=0.59 cfs 0.043 af

Pond 1P: Pervious Pavers

Peak Elev=5.22' Storage=90 cf Inflow=0.08 cfs 0.006 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

Pond 3P: 300 Gallon Dry Well

Peak Elev=6.27' Storage=47 cf Inflow=0.02 cfs 0.002 af
Discarded=0.00 cfs 0.002 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond 7P: 1000 Gallon Dry Well

Peak Elev=7.22' Storage=188 cf Inflow=0.08 cfs 0.006 af
Discarded=0.00 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.006 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.058 af Average Runoff Depth = 1.07"
86.62% Pervious = 0.559 ac 13.38% Impervious = 0.086 ac

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 1S: Driveways

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 2.92"
Routed to Pond 1P : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (sf)	CN	Description
1,032	98	Paved parking, HSG C
1,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 2S: Garage

Runoff = 0.02 cfs @ 12.07 hrs, Volume= 0.002 af, Depth= 2.92"
Routed to Pond 3P : 300 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (sf)	CN	Description
288	98	Paved parking, HSG C
288		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 3S: Landscape Area

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 0.001 af, Depth= 1.00"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (sf)	CN	Description
753	74	>75% Grass cover, Good, HSG C
753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 4S: House Roof

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 2.92"
Routed to Pond 7P : 1000 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

Area (sf)	CN	Description
1,072	98	Paved parking, HSG C
1,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Subcatchment 5S: Eastern Area

Runoff = 0.59 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 0.90"
Routed to Reach 2R : Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.15"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	20,442	70	Woods, Good, HSG C
	3,154	74	>75% Grass cover, Good, HSG C
	120	98	Roofs, HSG C
	24,964	72	Weighted Average
	23,596		94.52% Pervious Area
	1,368		5.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.041 ac, 57.82% Impervious, Inflow Depth = 0.42" for 2-Year event

Inflow = 0.02 cfs @ 12.08 hrs, Volume= 0.001 af

Outflow = 0.02 cfs @ 12.08 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Reach 2R: Wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.604 ac, 10.36% Impervious, Inflow Depth = 0.85" for 2-Year event

Inflow = 0.59 cfs @ 12.08 hrs, Volume= 0.043 af

Outflow = 0.59 cfs @ 12.08 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Pond 1P: Pervious Pavers

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 2.92" for 2-Year event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.01 cfs @ 12.86 hrs, Volume= 0.006 af, Atten= 91%, Lag= 47.7 min
Discarded = 0.01 cfs @ 12.86 hrs, Volume= 0.006 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Lake Attitash Way

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 5.22' @ 12.86 hrs Surf.Area= 1,032 sf Storage= 90 cf

Plug-Flow detention time= 95.6 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 95.6 min (851.4 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,032 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	1,032	0	0
6.00	1,032	1,032	1,032

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00' Phase-In= 0.01'
#2	Primary	5.83'	20.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.86 hrs HW=5.22' (Free Discharge)

↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Pond 3P: 300 Gallon Dry Well

Inflow Area = 0.007 ac, 100.00% Impervious, Inflow Depth = 2.92" for 2-Year event
Inflow = 0.02 cfs @ 12.07 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 16.30 hrs, Volume= 0.002 af, Atten= 98%, Lag= 253.9 min
Discarded = 0.00 cfs @ 16.30 hrs, Volume= 0.002 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 6.27' @ 16.30 hrs Surf.Area= 39 sf Storage= 47 cf

Plug-Flow detention time= 972.7 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 972.8 min (1,728.6 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	57 cf	6.50'W x 6.00'L x 5.25'H Field A 205 cf Overall - 62 cf Embedded = 142 cf x 40.0% Voids
#2A	4.50'	46 cf	Shea Dry Well 300gal Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	8.75'	1 cf	1.00'D x 1.00'H overflow-Impervious
		104 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 16.30 hrs HW=6.27' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=4.00' (Free Discharge)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Pond 3P: 300 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 300gal (Shea 4x4x4.25 Dry Well)

Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf

Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf

1 Chambers/Row x 4.00' Long = 4.00' Row Length +12.0" End Stone x 2 = 6.00' Base Length

1 Rows x 54.0" Wide + 12.0" Side Stone x 2 = 6.50' Base Width

6.0" Stone Base + 51.0" Chamber Height + 6.0" Stone Cover = 5.25' Field Height

1 Chambers x 46.4 cf = 46.4 cf Chamber Storage

1 Chambers x 62.3 cf = 62.3 cf Displacement

204.8 cf Field - 62.3 cf Chambers = 142.4 cf Stone x 40.0% Voids = 57.0 cf Stone Storage

Chamber Storage + Stone Storage = 103.3 cf = 0.002 af

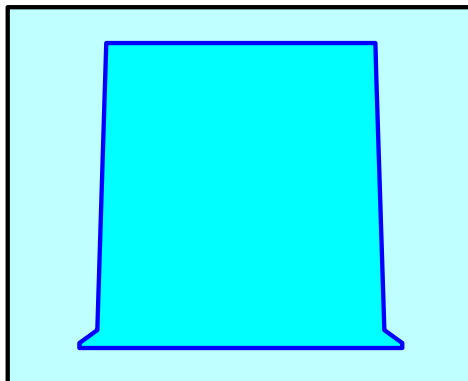
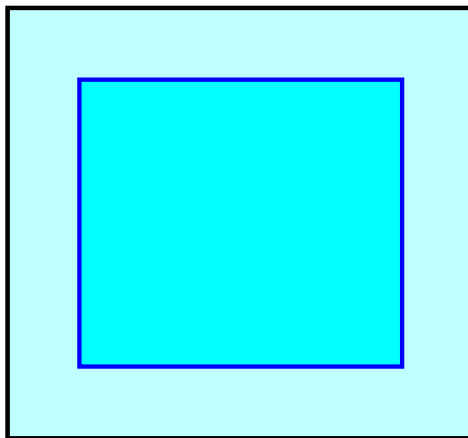
Overall Storage Efficiency = 50.5%

Overall System Size = 6.00' x 6.50' x 5.25'

1 Chambers

7.6 cy Field

5.3 cy Stone



6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Summary for Pond 7P: 1000 Gallon Dry Well

Inflow Area = 0.025 ac, 100.00% Impervious, Inflow Depth = 2.92" for 2-Year event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 17.26 hrs, Volume= 0.006 af, Atten= 98%, Lag= 311.2 min
Discarded = 0.00 cfs @ 17.26 hrs, Volume= 0.006 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 7.22' @ 17.26 hrs Surf.Area= 96 sf Storage= 188 cf

Plug-Flow detention time= 1,379.1 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 1,379.1 min (2,134.9 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	80 cf	7.67'W x 12.50'L x 3.83'H Field A 367 cf Overall - 166 cf Embedded = 201 cf x 40.0% Voids
#2A	4.50'	129 cf	Shea Dry Well 1000gal Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf
#3	7.80'	2 cf	1.00'D x 3.00'H overflow-Impervious
		211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 17.26 hrs HW=7.22' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=4.00' (Free Discharge)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 2-Year Rainfall=3.15"

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Pond 7P: 1000 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectangular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf

Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

1 Rows x 68.0" Wide + 12.0" Side Stone x 2 = 7.67' Base Width

6.0" Stone Base + 34.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

1 Chambers x 128.6 cf = 128.6 cf Chamber Storage

1 Chambers x 165.9 cf = 165.9 cf Displacement

367.1 cf Field - 165.9 cf Chambers = 201.1 cf Stone x 40.0% Voids = 80.5 cf Stone Storage

Chamber Storage + Stone Storage = 209.1 cf = 0.005 af

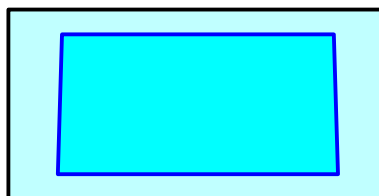
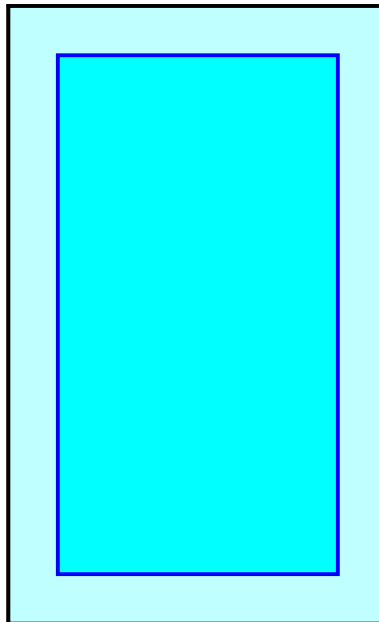
Overall Storage Efficiency = 57.0%

Overall System Size = 12.50' x 7.67' x 3.83'

1 Chambers

13.6 cy Field

7.4 cy Stone



6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Driveways Runoff Area=1,032 sf 100.00% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment2S: Garage Runoff Area=288 sf 100.00% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=98 Runoff=0.03 cfs 0.003 af

Subcatchment3S: Landscape Area Runoff Area=753 sf 0.00% Impervious Runoff Depth=2.23"
Tc=5.0 min CN=74 Runoff=0.05 cfs 0.003 af

Subcatchment4S: House Roof Runoff Area=1,072 sf 100.00% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment5S: Eastern Area Runoff Area=24,964 sf 5.48% Impervious Runoff Depth=2.07"
Flow Length=164' Tc=4.5 min CN=72 Runoff=1.45 cfs 0.099 af

Reach 1R: Lake Attitash Way Inflow=0.05 cfs 0.003 af
Outflow=0.05 cfs 0.003 af

Reach 2R: Wetland Inflow=1.45 cfs 0.101 af
Outflow=1.45 cfs 0.101 af

Pond 1P: Pervious Pavers Peak Elev=5.40' Storage=163 cf Inflow=0.12 cfs 0.009 af
Discarded=0.01 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.009 af

Pond 3P: 300 Gallon Dry Well Peak Elev=7.69' Storage=78 cf Inflow=0.03 cfs 0.003 af
Discarded=0.00 cfs 0.003 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.003 af

Pond 7P: 1000 Gallon Dry Well Peak Elev=9.10' Storage=210 cf Inflow=0.12 cfs 0.009 af
Discarded=0.00 cfs 0.007 af Primary=0.04 cfs 0.002 af Outflow=0.04 cfs 0.009 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.123 af Average Runoff Depth = 2.29"
86.62% Pervious = 0.559 ac 13.38% Impervious = 0.086 ac

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 1S: Driveways

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 4.59"
Routed to Pond 1P : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

Area (sf)	CN	Description
1,032	98	Paved parking, HSG C
1,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 2S: Garage

Runoff = 0.03 cfs @ 12.07 hrs, Volume= 0.003 af, Depth= 4.59"
Routed to Pond 3P : 300 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

Area (sf)	CN	Description
288	98	Paved parking, HSG C
288		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 3S: Landscape Area

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 0.003 af, Depth= 2.23"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

Area (sf)	CN	Description
753	74	>75% Grass cover, Good, HSG C
753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 4S: House Roof

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 4.59"
Routed to Pond 7P : 1000 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

Area (sf)	CN	Description
1,072	98	Paved parking, HSG C
1,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Subcatchment 5S: Eastern Area

Runoff = 1.45 cfs @ 12.07 hrs, Volume= 0.099 af, Depth= 2.07"
Routed to Reach 2R : Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.83"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	20,442	70	Woods, Good, HSG C
	3,154	74	>75% Grass cover, Good, HSG C
	120	98	Roofs, HSG C
	24,964	72	Weighted Average
	23,596		94.52% Pervious Area
	1,368		5.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.041 ac, 57.82% Impervious, Inflow Depth = 0.94" for 10-Year event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 0.003 af
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Reach 2R: Wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.604 ac, 10.36% Impervious, Inflow Depth = 2.00" for 10-Year event

Inflow = 1.45 cfs @ 12.07 hrs, Volume= 0.101 af

Outflow = 1.45 cfs @ 12.07 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Pond 1P: Pervious Pavers

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 4.59" for 10-Year event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 13.48 hrs, Volume= 0.009 af, Atten= 94%, Lag= 84.3 min
Discarded = 0.01 cfs @ 13.48 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Lake Attitash Way

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 5.40' @ 13.48 hrs Surf.Area= 1,032 sf Storage= 163 cf

Plug-Flow detention time= 182.1 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 182.1 min (929.8 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,032 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	1,032	0	0
6.00	1,032	1,032	1,032

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00' Phase-In= 0.01'
#2	Primary	5.83'	20.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 13.48 hrs HW=5.40' (Free Discharge)

↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Pond 3P: 300 Gallon Dry Well

Inflow Area = 0.007 ac, 100.00% Impervious, Inflow Depth = 4.59" for 10-Year event
Inflow = 0.03 cfs @ 12.07 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 16.96 hrs, Volume= 0.003 af, Atten= 98%, Lag= 293.4 min
Discarded = 0.00 cfs @ 16.96 hrs, Volume= 0.003 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 7.69' @ 16.96 hrs Surf.Area= 39 sf Storage= 78 cf

Plug-Flow detention time= 1,288.9 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 1,289.0 min (2,036.6 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	57 cf	6.50'W x 6.00'L x 5.25'H Field A 205 cf Overall - 62 cf Embedded = 142 cf x 40.0% Voids
#2A	4.50'	46 cf	Shea Dry Well 300gal Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	8.75'	1 cf	1.00'D x 1.00'H overflow-Impervious
		104 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 16.96 hrs HW=7.69' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=4.00' (Free Discharge)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 10-Year Rainfall=4.83"

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Pond 3P: 300 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 300gal (Shea 4x4x4.25 Dry Well)

Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf

Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf

1 Chambers/Row x 4.00' Long = 4.00' Row Length +12.0" End Stone x 2 = 6.00' Base Length

1 Rows x 54.0" Wide + 12.0" Side Stone x 2 = 6.50' Base Width

6.0" Stone Base + 51.0" Chamber Height + 6.0" Stone Cover = 5.25' Field Height

1 Chambers x 46.4 cf = 46.4 cf Chamber Storage

1 Chambers x 62.3 cf = 62.3 cf Displacement

204.8 cf Field - 62.3 cf Chambers = 142.4 cf Stone x 40.0% Voids = 57.0 cf Stone Storage

Chamber Storage + Stone Storage = 103.3 cf = 0.002 af

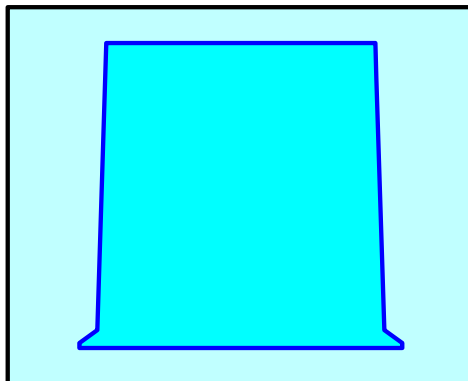
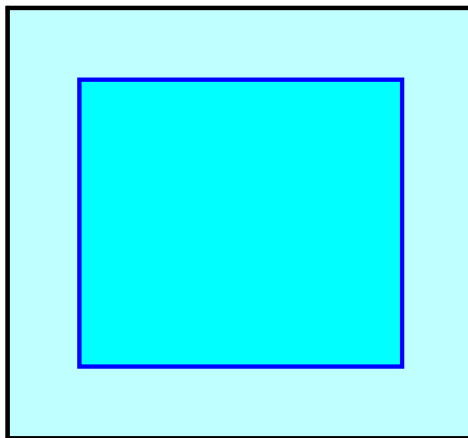
Overall Storage Efficiency = 50.5%

Overall System Size = 6.00' x 6.50' x 5.25'

1 Chambers

7.6 cy Field

5.3 cy Stone



6 Lake Attitash Way Proposed Conditions

Type III 24-hr 10-Year Rainfall=4.83"

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Summary for Pond 7P: 1000 Gallon Dry Well

Inflow Area = 0.025 ac, 100.00% Impervious, Inflow Depth = 4.59" for 10-Year event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.04 cfs @ 12.27 hrs, Volume= 0.009 af, Atten= 64%, Lag= 12.3 min
Discarded = 0.00 cfs @ 12.27 hrs, Volume= 0.007 af
Primary = 0.04 cfs @ 12.27 hrs, Volume= 0.002 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 9.10' @ 12.27 hrs Surf.Area= 96 sf Storage= 210 cf

Plug-Flow detention time= 1,089.7 min calculated for 0.009 af (99% of inflow)
Center-of-Mass det. time= 1,084.7 min (1,832.4 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	80 cf	7.67'W x 12.50'L x 3.83'H Field A 367 cf Overall - 166 cf Embedded = 201 cf x 40.0% Voids
#2A	4.50'	129 cf	Shea Dry Well 1000gal Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf
#3	7.80'	2 cf	1.00'D x 3.00'H overflow -Impervious
		211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.27 hrs HW=9.10' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=9.10' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 1.05 fps)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 10-Year Rainfall=4.83"

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Pond 7P: 1000 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectangular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf

Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

1 Rows x 68.0" Wide + 12.0" Side Stone x 2 = 7.67' Base Width

6.0" Stone Base + 34.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

1 Chambers x 128.6 cf = 128.6 cf Chamber Storage

1 Chambers x 165.9 cf = 165.9 cf Displacement

367.1 cf Field - 165.9 cf Chambers = 201.1 cf Stone x 40.0% Voids = 80.5 cf Stone Storage

Chamber Storage + Stone Storage = 209.1 cf = 0.005 af

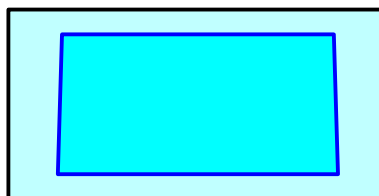
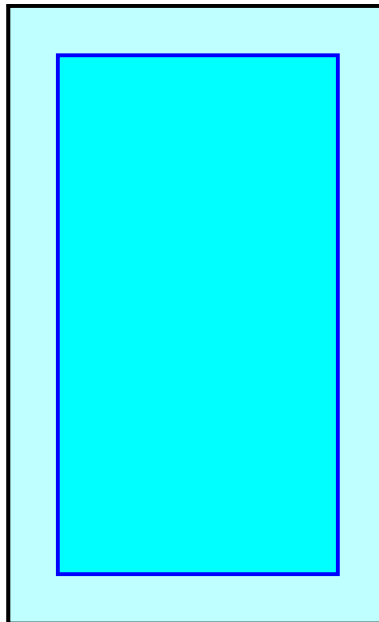
Overall Storage Efficiency = 57.0%

Overall System Size = 12.50' x 7.67' x 3.83'

1 Chambers

13.6 cy Field

7.4 cy Stone



6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Driveways

Runoff Area=1,032 sf 100.00% Impervious Runoff Depth=5.92"
Tc=5.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment2S: Garage

Runoff Area=288 sf 100.00% Impervious Runoff Depth=5.92"
Tc=5.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment3S: Landscape Area

Runoff Area=753 sf 0.00% Impervious Runoff Depth=3.32"
Tc=5.0 min CN=74 Runoff=0.07 cfs 0.005 af

Subcatchment4S: House Roof

Runoff Area=1,072 sf 100.00% Impervious Runoff Depth=5.92"
Tc=5.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment5S: Eastern Area

Runoff Area=24,964 sf 5.48% Impervious Runoff Depth=3.12"
Flow Length=164' Tc=4.5 min CN=72 Runoff=2.21 cfs 0.149 af

Reach 1R: Lake Attitash Way

Inflow=0.07 cfs 0.005 af
Outflow=0.07 cfs 0.005 af

Reach 2R: Wetland

Inflow=2.33 cfs 0.154 af
Outflow=2.33 cfs 0.154 af

Pond 1P: Pervious Pavers

Peak Elev=5.56' Storage=230 cf Inflow=0.15 cfs 0.012 af
Discarded=0.01 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.012 af

Pond 3P: 300 Gallon Dry Well

Peak Elev=9.01' Storage=100 cf Inflow=0.04 cfs 0.003 af
Discarded=0.00 cfs 0.003 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.003 af

Pond 7P: 1000 Gallon Dry Well

Peak Elev=9.17' Storage=210 cf Inflow=0.15 cfs 0.012 af
Discarded=0.00 cfs 0.007 af Primary=0.13 cfs 0.005 af Outflow=0.13 cfs 0.012 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.181 af Average Runoff Depth = 3.37"
86.62% Pervious = 0.559 ac 13.38% Impervious = 0.086 ac

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 1S: Driveways

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 5.92"
Routed to Pond 1P : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

Area (sf)	CN	Description
1,032	98	Paved parking, HSG C
1,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 2S: Garage

Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Depth= 5.92"
Routed to Pond 3P : 300 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

Area (sf)	CN	Description
288	98	Paved parking, HSG C
288		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 3S: Landscape Area

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 3.32"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

Area (sf)	CN	Description
753	74	>75% Grass cover, Good, HSG C
753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 4S: House Roof

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 5.92"
Routed to Pond 7P : 1000 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

Area (sf)	CN	Description
1,072	98	Paved parking, HSG C
1,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Subcatchment 5S: Eastern Area

Runoff = 2.21 cfs @ 12.07 hrs, Volume= 0.149 af, Depth= 3.12"
Routed to Reach 2R : Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.16"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	20,442	70	Woods, Good, HSG C
	3,154	74	>75% Grass cover, Good, HSG C
	120	98	Roofs, HSG C
	24,964	72	Weighted Average
	23,596		94.52% Pervious Area
	1,368		5.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.041 ac, 57.82% Impervious, Inflow Depth = 1.40" for 25-Year event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Reach 2R: Wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.604 ac, 10.36% Impervious, Inflow Depth = 3.06" for 25-Year event

Inflow = 2.33 cfs @ 12.07 hrs, Volume= 0.154 af

Outflow = 2.33 cfs @ 12.07 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Pond 1P: Pervious Pavers

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 5.92" for 25-Year event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
Outflow = 0.01 cfs @ 13.95 hrs, Volume= 0.012 af, Atten= 95%, Lag= 112.8 min
Discarded = 0.01 cfs @ 13.95 hrs, Volume= 0.012 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Lake Attitash Way

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 5.56' @ 13.95 hrs Surf.Area= 1,032 sf Storage= 230 cf

Plug-Flow detention time= 258.2 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 258.2 min (1,002.0 - 743.8)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,032 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	1,032	0	0
6.00	1,032	1,032	1,032

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00' Phase-In= 0.01'
#2	Primary	5.83'	20.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 13.95 hrs HW=5.56' (Free Discharge)

↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Pond 3P: 300 Gallon Dry Well

Inflow Area = 0.007 ac, 100.00% Impervious, Inflow Depth = 5.92" for 25-Year event
Inflow = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 14.61 hrs, Volume= 0.003 af, Atten= 96%, Lag= 152.7 min
Discarded = 0.00 cfs @ 14.61 hrs, Volume= 0.003 af
Primary = 0.00 cfs @ 14.61 hrs, Volume= 0.000 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 9.01' @ 14.61 hrs Surf.Area= 39 sf Storage= 100 cf

Plug-Flow detention time= 1,394.6 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 1,394.7 min (2,138.5 - 743.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	57 cf	6.50'W x 6.00'L x 5.25'H Field A 205 cf Overall - 62 cf Embedded = 142 cf x 40.0% Voids
#2A	4.50'	46 cf	Shea Dry Well 300gal Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	8.75'	1 cf	1.00'D x 1.00'H overflow-Impervious
		104 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 14.61 hrs HW=9.01' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 14.61 hrs HW=9.01' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.24 fps)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Pond 3P: 300 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 300gal (Shea 4x4x4.25 Dry Well)

Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf

Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf

1 Chambers/Row x 4.00' Long = 4.00' Row Length +12.0" End Stone x 2 = 6.00' Base Length

1 Rows x 54.0" Wide + 12.0" Side Stone x 2 = 6.50' Base Width

6.0" Stone Base + 51.0" Chamber Height + 6.0" Stone Cover = 5.25' Field Height

1 Chambers x 46.4 cf = 46.4 cf Chamber Storage

1 Chambers x 62.3 cf = 62.3 cf Displacement

204.8 cf Field - 62.3 cf Chambers = 142.4 cf Stone x 40.0% Voids = 57.0 cf Stone Storage

Chamber Storage + Stone Storage = 103.3 cf = 0.002 af

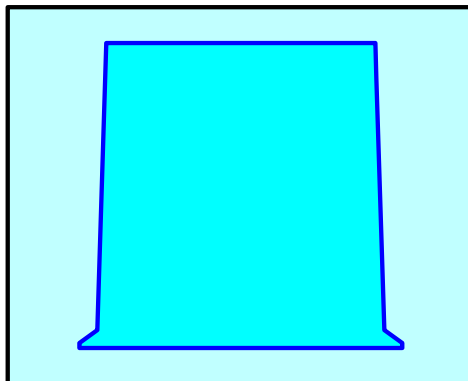
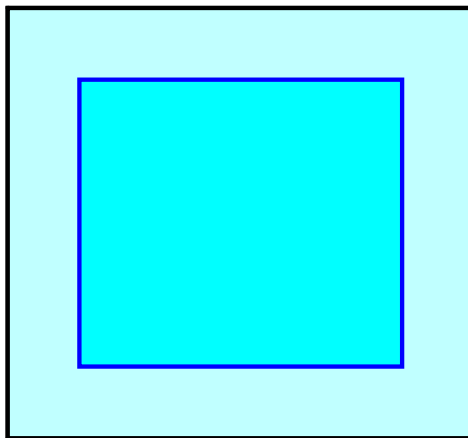
Overall Storage Efficiency = 50.5%

Overall System Size = 6.00' x 6.50' x 5.25'

1 Chambers

7.6 cy Field

5.3 cy Stone



6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Summary for Pond 7P: 1000 Gallon Dry Well

Inflow Area = 0.025 ac, 100.00% Impervious, Inflow Depth = 5.92" for 25-Year event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
Outflow = 0.13 cfs @ 12.09 hrs, Volume= 0.012 af, Atten= 17%, Lag= 1.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 0.007 af
Primary = 0.13 cfs @ 12.09 hrs, Volume= 0.005 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 9.17' @ 12.09 hrs Surf.Area= 96 sf Storage= 210 cf

Plug-Flow detention time= 886.8 min calculated for 0.012 af (99% of inflow)
Center-of-Mass det. time= 878.3 min (1,622.1 - 743.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	80 cf	7.67'W x 12.50'L x 3.83'H Field A 367 cf Overall - 166 cf Embedded = 201 cf x 40.0% Voids
#2A	4.50'	129 cf	Shea Dry Well 1000gal Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf
#3	7.80'	2 cf	1.00'D x 3.00'H overflow-Impervious
		211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=9.17' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.09 hrs HW=9.17' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.41 fps)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 25-Year Rainfall=6.16"

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Pond 7P: 1000 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectangular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf

Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

1 Rows x 68.0" Wide + 12.0" Side Stone x 2 = 7.67' Base Width

6.0" Stone Base + 34.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

1 Chambers x 128.6 cf = 128.6 cf Chamber Storage

1 Chambers x 165.9 cf = 165.9 cf Displacement

367.1 cf Field - 165.9 cf Chambers = 201.1 cf Stone x 40.0% Voids = 80.5 cf Stone Storage

Chamber Storage + Stone Storage = 209.1 cf = 0.005 af

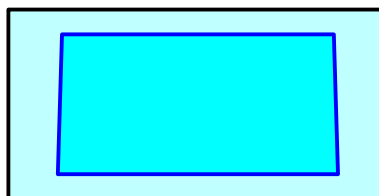
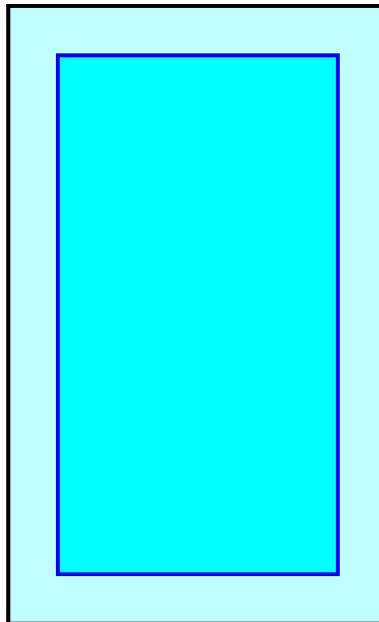
Overall Storage Efficiency = 57.0%

Overall System Size = 12.50' x 7.67' x 3.83'

1 Chambers

13.6 cy Field

7.4 cy Stone



6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Driveways

Runoff Area=1,032 sf 100.00% Impervious Runoff Depth=7.18"
Tc=5.0 min CN=98 Runoff=0.18 cfs 0.014 af

Subcatchment2S: Garage

Runoff Area=288 sf 100.00% Impervious Runoff Depth=7.18"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment3S: Landscape Area

Runoff Area=753 sf 0.00% Impervious Runoff Depth=4.41"
Tc=5.0 min CN=74 Runoff=0.09 cfs 0.006 af

Subcatchment4S: House Roof

Runoff Area=1,072 sf 100.00% Impervious Runoff Depth=7.18"
Tc=5.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment5S: Eastern Area

Runoff Area=24,964 sf 5.48% Impervious Runoff Depth=4.19"
Flow Length=164' Tc=4.5 min CN=72 Runoff=2.97 cfs 0.200 af

Reach 1R: Lake Attitash Way

Inflow=0.09 cfs 0.006 af
Outflow=0.09 cfs 0.006 af

Reach 2R: Wetland

Inflow=3.15 cfs 0.208 af
Outflow=3.15 cfs 0.208 af

Pond 1P: Pervious Pavers

Peak Elev=5.72' Storage=299 cf Inflow=0.18 cfs 0.014 af
Discarded=0.01 cfs 0.014 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.014 af

Pond 3P: 300 Gallon Dry Well

Peak Elev=9.05' Storage=100 cf Inflow=0.05 cfs 0.004 af
Discarded=0.00 cfs 0.003 af Primary=0.01 cfs 0.001 af Outflow=0.01 cfs 0.004 af

Pond 7P: 1000 Gallon Dry Well

Peak Elev=9.20' Storage=210 cf Inflow=0.19 cfs 0.015 af
Discarded=0.00 cfs 0.008 af Primary=0.18 cfs 0.007 af Outflow=0.18 cfs 0.015 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.239 af Average Runoff Depth = 4.45"
86.62% Pervious = 0.559 ac 13.38% Impervious = 0.086 ac

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 1S: Driveways

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 7.18"
Routed to Pond 1P : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
1,032	98	Paved parking, HSG C
1,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 2S: Garage

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 7.18"
Routed to Pond 3P : 300 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
288	98	Paved parking, HSG C
288		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 3S: Landscape Area

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 4.41"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
753	74	>75% Grass cover, Good, HSG C
753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 4S: House Roof

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 7.18"
Routed to Pond 7P : 1000 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
1,072	98	Paved parking, HSG C
1,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Subcatchment 5S: Eastern Area

Runoff = 2.97 cfs @ 12.07 hrs, Volume= 0.200 af, Depth= 4.19"
Routed to Reach 2R : Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.42"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	20,442	70	Woods, Good, HSG C
	3,154	74	>75% Grass cover, Good, HSG C
	120	98	Roofs, HSG C
	24,964	72	Weighted Average
	23,596		94.52% Pervious Area
	1,368		5.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.041 ac, 57.82% Impervious, Inflow Depth = 1.86" for 50-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Reach 2R: Wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.604 ac, 10.36% Impervious, Inflow Depth = 4.12" for 50-Year event

Inflow = 3.15 cfs @ 12.07 hrs, Volume= 0.208 af

Outflow = 3.15 cfs @ 12.07 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Pond 1P: Pervious Pavers

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 7.18" for 50-Year event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af
Outflow = 0.01 cfs @ 14.41 hrs, Volume= 0.014 af, Atten= 96%, Lag= 140.2 min
Discarded = 0.01 cfs @ 14.41 hrs, Volume= 0.014 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Lake Attitash Way

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 5.72' @ 14.41 hrs Surf.Area= 1,032 sf Storage= 299 cf

Plug-Flow detention time= 330.2 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 330.2 min (1,071.4 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,032 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	1,032	0	0
6.00	1,032	1,032	1,032

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00' Phase-In= 0.01'
#2	Primary	5.83'	20.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 14.41 hrs HW=5.72' (Free Discharge)

↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=5.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Pond 3P: 300 Gallon Dry Well

Inflow Area = 0.007 ac, 100.00% Impervious, Inflow Depth = 7.18" for 50-Year event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.42 hrs, Volume= 0.004 af, Atten= 74%, Lag= 21.3 min
Discarded = 0.00 cfs @ 12.42 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 12.42 hrs, Volume= 0.001 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 9.05' @ 12.42 hrs Surf.Area= 39 sf Storage= 100 cf

Plug-Flow detention time= 1,194.6 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 1,194.7 min (1,936.0 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	57 cf	6.50'W x 6.00'L x 5.25'H Field A 205 cf Overall - 62 cf Embedded = 142 cf x 40.0% Voids
#2A	4.50'	46 cf	Shea Dry Well 300gal Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	8.75'	1 cf	1.00'D x 1.00'H overflow -Impervious
		104 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.42 hrs HW=9.05' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 12.42 hrs HW=9.05' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.74 fps)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 50-Year Rainfall=7.42"

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Pond 3P: 300 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 300gal (Shea 4x4x4.25 Dry Well)

Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf

Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf

1 Chambers/Row x 4.00' Long = 4.00' Row Length +12.0" End Stone x 2 = 6.00' Base Length

1 Rows x 54.0" Wide + 12.0" Side Stone x 2 = 6.50' Base Width

6.0" Stone Base + 51.0" Chamber Height + 6.0" Stone Cover = 5.25' Field Height

1 Chambers x 46.4 cf = 46.4 cf Chamber Storage

1 Chambers x 62.3 cf = 62.3 cf Displacement

204.8 cf Field - 62.3 cf Chambers = 142.4 cf Stone x 40.0% Voids = 57.0 cf Stone Storage

Chamber Storage + Stone Storage = 103.3 cf = 0.002 af

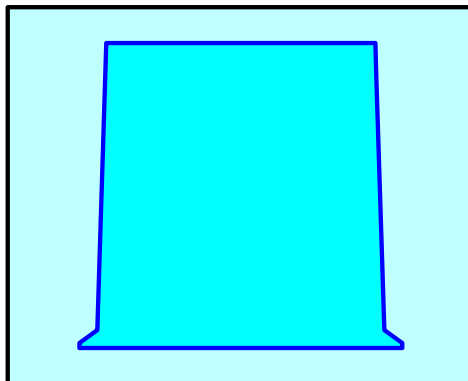
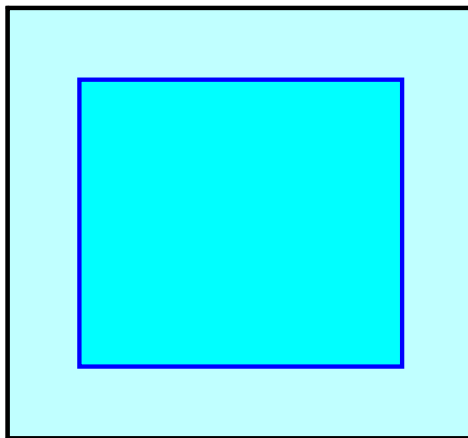
Overall Storage Efficiency = 50.5%

Overall System Size = 6.00' x 6.50' x 5.25'

1 Chambers

7.6 cy Field

5.3 cy Stone



6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 50-Year Rainfall=7.42"

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Summary for Pond 7P: 1000 Gallon Dry Well

Inflow Area = 0.025 ac, 100.00% Impervious, Inflow Depth = 7.18" for 50-Year event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af
Outflow = 0.18 cfs @ 12.07 hrs, Volume= 0.015 af, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0.008 af
Primary = 0.18 cfs @ 12.07 hrs, Volume= 0.007 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 9.20' @ 12.07 hrs Surf.Area= 96 sf Storage= 210 cf

Plug-Flow detention time= 750.0 min calculated for 0.015 af (99% of inflow)
Center-of-Mass det. time= 741.2 min (1,482.4 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	80 cf	7.67'W x 12.50'L x 3.83'H Field A 367 cf Overall - 166 cf Embedded = 201 cf x 40.0% Voids
#2A	4.50'	129 cf	Shea Dry Well 1000gal Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf
#3	7.80'	2 cf	1.00'D x 3.00'H overflow -Impervious
		211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=9.20' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.07 hrs HW=9.20' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.54 fps)

6 Lake Attitash Way Proposed Conditions

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Type III 24-hr 50-Year Rainfall=7.42"

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Pond 7P: 1000 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectangular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf

Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

1 Rows x 68.0" Wide + 12.0" Side Stone x 2 = 7.67' Base Width

6.0" Stone Base + 34.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

1 Chambers x 128.6 cf = 128.6 cf Chamber Storage

1 Chambers x 165.9 cf = 165.9 cf Displacement

367.1 cf Field - 165.9 cf Chambers = 201.1 cf Stone x 40.0% Voids = 80.5 cf Stone Storage

Chamber Storage + Stone Storage = 209.1 cf = 0.005 af

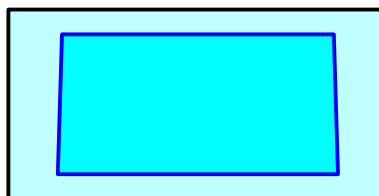
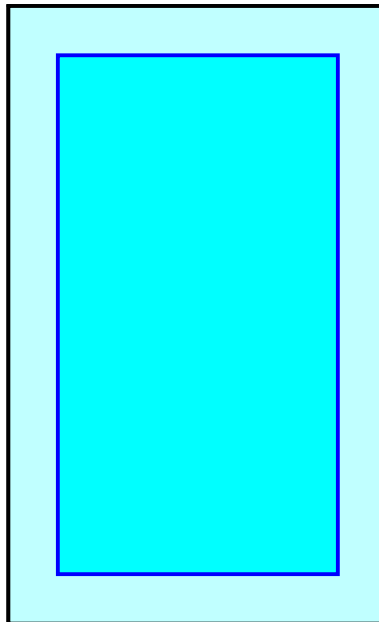
Overall Storage Efficiency = 57.0%

Overall System Size = 12.50' x 7.67' x 3.83'

1 Chambers

13.6 cy Field

7.4 cy Stone



6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Driveways

Runoff Area=1,032 sf 100.00% Impervious Runoff Depth=8.70"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment2S: Garage

Runoff Area=288 sf 100.00% Impervious Runoff Depth=8.70"
Tc=5.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment3S: Landscape Area

Runoff Area=753 sf 0.00% Impervious Runoff Depth=5.77"
Tc=5.0 min CN=74 Runoff=0.12 cfs 0.008 af

Subcatchment4S: House Roof

Runoff Area=1,072 sf 100.00% Impervious Runoff Depth=8.70"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment5S: Eastern Area

Runoff Area=24,964 sf 5.48% Impervious Runoff Depth=5.53"
Flow Length=164' Tc=4.5 min CN=72 Runoff=3.91 cfs 0.264 af

Reach 1R: Lake Attitash Way

Inflow=0.12 cfs 0.009 af
Outflow=0.12 cfs 0.009 af

Reach 2R: Wetland

Inflow=4.13 cfs 0.276 af
Outflow=4.13 cfs 0.276 af

Pond 1P: Pervious Pavers

Peak Elev=5.83' Storage=344 cf Inflow=0.22 cfs 0.017 af
Discarded=0.01 cfs 0.016 af Primary=0.02 cfs 0.001 af Outflow=0.03 cfs 0.017 af

Pond 3P: 300 Gallon Dry Well

Peak Elev=9.09' Storage=101 cf Inflow=0.06 cfs 0.005 af
Discarded=0.00 cfs 0.003 af Primary=0.04 cfs 0.001 af Outflow=0.04 cfs 0.005 af

Pond 7P: 1000 Gallon Dry Well

Peak Elev=9.23' Storage=210 cf Inflow=0.22 cfs 0.018 af
Discarded=0.00 cfs 0.008 af Primary=0.22 cfs 0.010 af Outflow=0.22 cfs 0.018 af

Total Runoff Area = 0.645 ac Runoff Volume = 0.312 af Average Runoff Depth = 5.80"
86.62% Pervious = 0.559 ac 13.38% Impervious = 0.086 ac

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 1S: Driveways

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 8.70"
Routed to Pond 1P : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

Area (sf)	CN	Description
1,032	98	Paved parking, HSG C
1,032		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 2S: Garage

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 8.70"
Routed to Pond 3P : 300 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

Area (sf)	CN	Description
288	98	Paved parking, HSG C
288		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 3S: Landscape Area

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 5.77"
Routed to Reach 1R : Lake Attitash Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

Area (sf)	CN	Description
753	74	>75% Grass cover, Good, HSG C
753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 4S: House Roof

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.018 af, Depth= 8.70"
Routed to Pond 7P : 1000 Gallon Dry Well

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

Area (sf)	CN	Description
1,072	98	Paved parking, HSG C
1,072		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Subcatchment 5S: Eastern Area

Runoff = 3.91 cfs @ 12.07 hrs, Volume= 0.264 af, Depth= 5.53"
Routed to Reach 2R : Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.94"

	Area (sf)	CN	Description
*	1,248	98	Wetland, HSG C
	20,442	70	Woods, Good, HSG C
	3,154	74	>75% Grass cover, Good, HSG C
	120	98	Roofs, HSG C
	24,964	72	Weighted Average
	23,596		94.52% Pervious Area
	1,368		5.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.4500	0.23		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
0.3	49	0.3600	3.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.6	65	0.1300	1.80		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
4.5	164	Total			

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Reach 1R: Lake Attitash Way

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.041 ac, 57.82% Impervious, Inflow Depth = 2.74" for 100-Year event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Reach 2R: Wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.604 ac, 10.36% Impervious, Inflow Depth = 5.47" for 100-Year event

Inflow = 4.13 cfs @ 12.07 hrs, Volume= 0.276 af

Outflow = 4.13 cfs @ 12.07 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Pond 1P: Pervious Pavers

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 8.70" for 100-Year event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.03 cfs @ 12.62 hrs, Volume= 0.017 af, Atten= 88%, Lag= 32.7 min
Discarded = 0.01 cfs @ 12.62 hrs, Volume= 0.016 af
Primary = 0.02 cfs @ 12.62 hrs, Volume= 0.001 af
Routed to Reach 1R : Lake Attitash Way

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 5.83' @ 12.62 hrs Surf.Area= 1,032 sf Storage= 344 cf

Plug-Flow detention time= 355.3 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 355.3 min (1,094.3 - 739.0)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	413 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,032 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	1,032	0	0
6.00	1,032	1,032	1,032

Device	Routing	Invert	Outlet Devices
#1	Discarded	5.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00' Phase-In= 0.01'
#2	Primary	5.83'	20.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.01 cfs @ 12.62 hrs HW=5.83' (Free Discharge)

↑**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 12.62 hrs HW=5.83' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.14 fps)

6 Lake Attitash Way Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.94"

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Summary for Pond 3P: 300 Gallon Dry Well

Inflow Area = 0.007 ac, 100.00% Impervious, Inflow Depth = 8.70" for 100-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 12.16 hrs, Volume= 0.005 af, Atten= 37%, Lag= 5.3 min
Discarded = 0.00 cfs @ 12.16 hrs, Volume= 0.003 af
Primary = 0.04 cfs @ 12.16 hrs, Volume= 0.001 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs
Peak Elev= 9.09' @ 12.16 hrs Surf.Area= 39 sf Storage= 101 cf

Plug-Flow detention time= 1,020.5 min calculated for 0.005 af (100% of inflow)
Center-of-Mass det. time= 1,020.6 min (1,759.6 - 739.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	57 cf	6.50'W x 6.00'L x 5.25'H Field A 205 cf Overall - 62 cf Embedded = 142 cf x 40.0% Voids
#2A	4.50'	46 cf	Shea Dry Well 300gal Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
#3	8.75'	1 cf	1.00'D x 1.00'H overflow -Impervious
		104 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.16 hrs HW=9.09' (Free Discharge)
↑**1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.03 cfs @ 12.16 hrs HW=9.09' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.01 fps)

6 Lake Attitash Way Proposed Conditions

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Pond 3P: 300 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 300gal (Shea 4x4x4.25 Dry Well)

Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf

Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf

1 Chambers/Row x 4.00' Long = 4.00' Row Length +12.0" End Stone x 2 = 6.00' Base Length

1 Rows x 54.0" Wide + 12.0" Side Stone x 2 = 6.50' Base Width

6.0" Stone Base + 51.0" Chamber Height + 6.0" Stone Cover = 5.25' Field Height

1 Chambers x 46.4 cf = 46.4 cf Chamber Storage

1 Chambers x 62.3 cf = 62.3 cf Displacement

204.8 cf Field - 62.3 cf Chambers = 142.4 cf Stone x 40.0% Voids = 57.0 cf Stone Storage

Chamber Storage + Stone Storage = 103.3 cf = 0.002 af

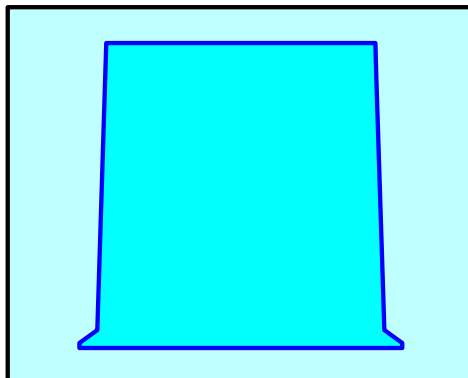
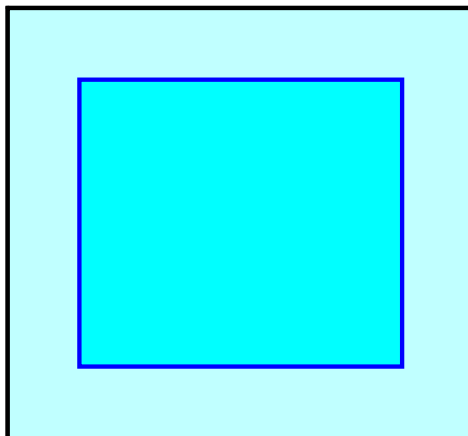
Overall Storage Efficiency = 50.5%

Overall System Size = 6.00' x 6.50' x 5.25'

1 Chambers

7.6 cy Field

5.3 cy Stone



6 Lake Attitash Way Proposed Conditions

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Summary for Pond 7P: 1000 Gallon Dry Well

Inflow Area = 0.025 ac, 100.00% Impervious, Inflow Depth = 8.70" for 100-Year event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.018 af
Outflow = 0.22 cfs @ 12.07 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0.008 af
Primary = 0.22 cfs @ 12.07 hrs, Volume= 0.010 af
Routed to Reach 2R : Wetland

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 9.23' @ 12.07 hrs Surf.Area= 96 sf Storage= 210 cf

Plug-Flow detention time= 608.9 min calculated for 0.018 af (100% of inflow)
Center-of-Mass det. time= 614.4 min (1,353.4 - 739.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	4.00'	80 cf	7.67'W x 12.50'L x 3.83'H Field A 367 cf Overall - 166 cf Embedded = 201 cf x 40.0% Voids
#2A	4.50'	129 cf	Shea Dry Well 1000gal Inside #1 Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf
#3	7.80'	2 cf	1.00'D x 3.00'H overflow -Impervious
		211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 2.00'
#2	Primary	9.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=9.23' (Free Discharge)
↑ **1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.22 cfs @ 12.07 hrs HW=9.23' (Free Discharge)
↑ **2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 1.63 fps)

6 Lake Attitash Way Proposed Conditions

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Pond 7P: 1000 Gallon Dry Well - Chamber Wizard Field A

Chamber Model = Shea Dry Well 1000gal (Shea Jumbo Rectangular Dry Well)

Inside= 62.0"W x 30.0"H => 12.86 sf x 10.00'L = 128.6 cf

Outside= 68.0"W x 34.0"H => 15.80 sf x 10.50'L = 165.9 cf

1 Chambers/Row x 10.50' Long = 10.50' Row Length +12.0" End Stone x 2 = 12.50' Base Length

1 Rows x 68.0" Wide + 12.0" Side Stone x 2 = 7.67' Base Width

6.0" Stone Base + 34.0" Chamber Height + 6.0" Stone Cover = 3.83' Field Height

1 Chambers x 128.6 cf = 128.6 cf Chamber Storage

1 Chambers x 165.9 cf = 165.9 cf Displacement

367.1 cf Field - 165.9 cf Chambers = 201.1 cf Stone x 40.0% Voids = 80.5 cf Stone Storage

Chamber Storage + Stone Storage = 209.1 cf = 0.005 af

Overall Storage Efficiency = 57.0%

Overall System Size = 12.50' x 7.67' x 3.83'

1 Chambers

13.6 cy Field

7.4 cy Stone

